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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,432	04/06/2001	Alexandre M. Izmailov	VGEN.P-066	6093
28441	7590	09/12/2006	EXAMINER	
BRINKS HOFER GILSON & LIONE UTAH OFFICE 299 SOUTH MAIN STREET SUITE 1300 SALT LAKE CITY, UT 84111			LY, CHEYNE D	
		ART UNIT	PAPER NUMBER	
		2168		

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/827,432	IZMAILOV ET AL.
Examiner	Art Unit	
Cheyne D. Ly	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 8/30/06.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 14-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 14-30 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. \_\_\_\_ .  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_ . 5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_ .

### **DETAILED ACTION**

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Claims 14-30 are examined on the merits.

### **Sequence Compliance**

3. This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR § 1.821(a)(1) and (a)(2). See, for example, Page 9, line 7. However, this application fails to comply with the requirements of 37 CFR § 1.821 through 1.825 because Page 9, line 7, contains a nucleic acid sequence with sequence length that is equal to or greater than 10 nucleic acid molecules and the sequence does not have a SEQ ID No cited along with each sequence in the specification. Applicants are also reminded that a CD-ROM sequence listing submission may replace the paper and computer readable form sequence listing copies. Applicant(s) are required to submit a new computer readable form sequence listing, a paper copy for the specification, statements under 37 CFR § 1.821(f) and (g), if there is a need to list additional sequences in the listing. Applicant(s) are given the same response time regarding this failure to comply as that set forth to respond to this office action. Failure to respond to this requirement may result in abandonment of the instant application or a notice of a failure to fully respond to this Office action.

### **CLAIM REJECTIONS - 35 USC § 101**

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 14-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory algorithm type subject matter.
6. Claims 14-30 are rejected because the claimed method does not result in any physical transformation or produce any tangible, concrete, and useful results. It is noted that the instant specification recites “a method for alignment of data traces obtained from a DNA sequencing apparatus.” However, the claims merely recite the steps of selecting data traces and aligning said data traces wherein the alignment has been reasonably interpreted as being performed by a mathematical algorithm without generating any tangible, concrete, and useful results, as supported by the instant specification (page 3, Figure 2 description). Further, the claims recite steps which have been interpreted as being performed by a mathematical algorithm wherein the step of “data traces obtained from a DNA sequencing apparatus” (physical transformation) does not inherently flow from said claim.

#### **CLAIM REJECTIONS - 35 USC § 102**

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 14-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Yager et al. (May 1999) (Yager hereafter).
9. In regard to claim 14, Yager discloses a method for alignment of a plurality of data traces indicative of the positions of a plurality of nucleic acid base types in a target nucleic acid sequence (Abstract etc.), comprising the steps of:

(a) selecting for each data trace one or more points corresponding to an internal peak associated with internal bases that are highly conserved in the target nucleic acid (page 1294, Figure 11, and page 1295, Figure 12), and further selecting alignment points selected from the group consisting of a primer peak associated unextended primer, a full-length peak associated with full length product produced during a cyclic primer extension reaction with two primers (page 1294, column 2, section 4.5.3, to page 1295, column 2, line 13) and assigning to each alignment point a reference position number reflecting the relative position of the alignment point with respect to the sequence as a whole (page 1295, Figure 12 A-F);

(b) assigning a sequence position number to each peak in each of the plurality of data traces that maximizes the number of times that the sequence position number and the reference position number are assigned to a base of the same type (page 1290, column 1, section 4.2.3, especially, “leading to maximal certainty in base calling...”, and page 1293, Figure 10); and

(c) aligning the data traces based on the assigned sequence position numbers (page 1287, column 1, last paragraph).

10. In regard to claims 15-17 and 22-30, Yager discloses the heterogeneous multiplets and four data traces, one for each nucleotide based type (page 1293, Figure 10, page 1294, Figure 11, and page 1295, Figure 12).

11. In regard to claims 18-21, Yager discloses the claimed invention as cited above. Further, Yager discloses “a set of five or more alignment points” (page 1290, column 1, section 4.2.3, especially, at least 20 points per peak must be collected in order to record the peak shape

accurately”), and “average peak spacing” (page 1284, Figure 2, page 1285, column 1, section 3.3.1, to page 1286, line 5).

## **CONCLUSION**

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: WO 98/00708 (Gilchrist et al.).
13. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.
14. For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199. The USPTO's official fax number is 571-272-8300.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Dune Ly, whose telephone number is (571) 272-0716. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

16. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo, can be reached on (571) 272-3642.

C. Dune Ly /cm/  
Patent Examiner  
9/8/06

Carry M/V  
primary Examiner  
Cam Ly Truong